

527,438

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
25 March 2004 (25.03.2004)

PCT

(10) International Publication Number  
**WO 2004/024954 A1**

(51) International Patent Classification<sup>7</sup>: **C12Q 1/68**

(21) International Application Number:  
PCT/KR2003/001820

(22) International Filing Date:  
4 September 2003 (04.09.2003)

(25) Filing Language: Korean

(26) Publication Language: English

(30) Priority Data:  
10-2002-0055575  
13 September 2002 (13.09.2002) KR

(71) Applicant (for all designated States except US): **KO-  
REA RESEARCH INSTITUTE OF BIOSCIENCE  
AND BIOTECHNOLOGY** [KR/KR]; 52, Oun-dong,  
Yusung-ku, Taejeon-si 305-333 (KR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **CHOI, Eui-Sung**

[KR/KR]; #102-507 Dasol Apt., 395-3 Gung-dong,  
Yusung-ku, Taejeon-si 305-335 (KR). **SOHN, Jung-Hoon**  
[KR/KR]; #103-506 Nuri Apt., Wolpyeong-dong, Seo-ku,  
Taejeon-si 302-280 (KR). **KIM, So-Young** [KR/KR];  
#1005-503 Jugong Apt., Jungang-dong, Gwacheon-si,  
Kyunggi-do 427-010 (KR).

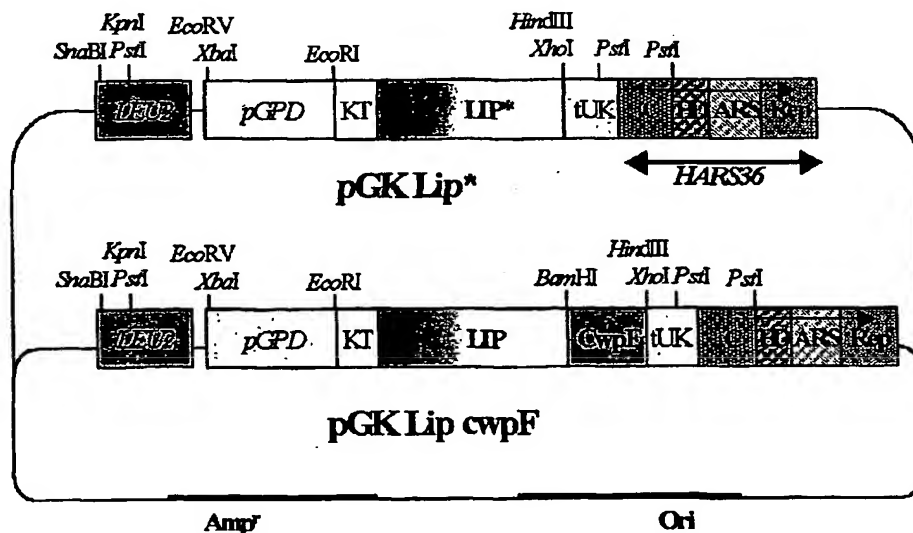
(74) Agent: **LEE, Won-Hee**; 8th Fl., Sung-ji Heights II, 642-16  
Yoksam-dong, Kangnam-ku, Seoul 135-080 (KR).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK,  
LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX,  
MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD,  
SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG,  
US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,

[Continued on next page]

(54) Title: METHOD FOR SCREENING OF A LIPASE HAVING IMPROVED ENZYMATIC ACTIVITY USING YEAST SUR-  
FACE DISPLAY VECTOR AND THE LIPASE



(57) Abstract: The present invention relates to a method for screening of the lipase having improved enzymatic activity using yeast surface display vector and the mutant lipase prepared by the same, more particularly to the method comprising; 1) cloning lipase gene into surface display vector, 2) preparing mutant lipase gene library of the step 1 by mutagenic PCR, 3) transforming the mutant lipase gene library of the step 2 and surface display vector into host cell, and 4) measuring the activity of the mutant lipase displayed in the surface of the transformed host cell and selecting the mutant lipase prepared by the same. The method of the present invention can screen the lipase having improved enzymatic activity. So, it can effectively be used for the various fields, such as food and detergent industry.

WO 2004/024954 A1

WO 2004/024954 A1



SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**Published:**

— with international search report